

Modelling in CRCSI Projects

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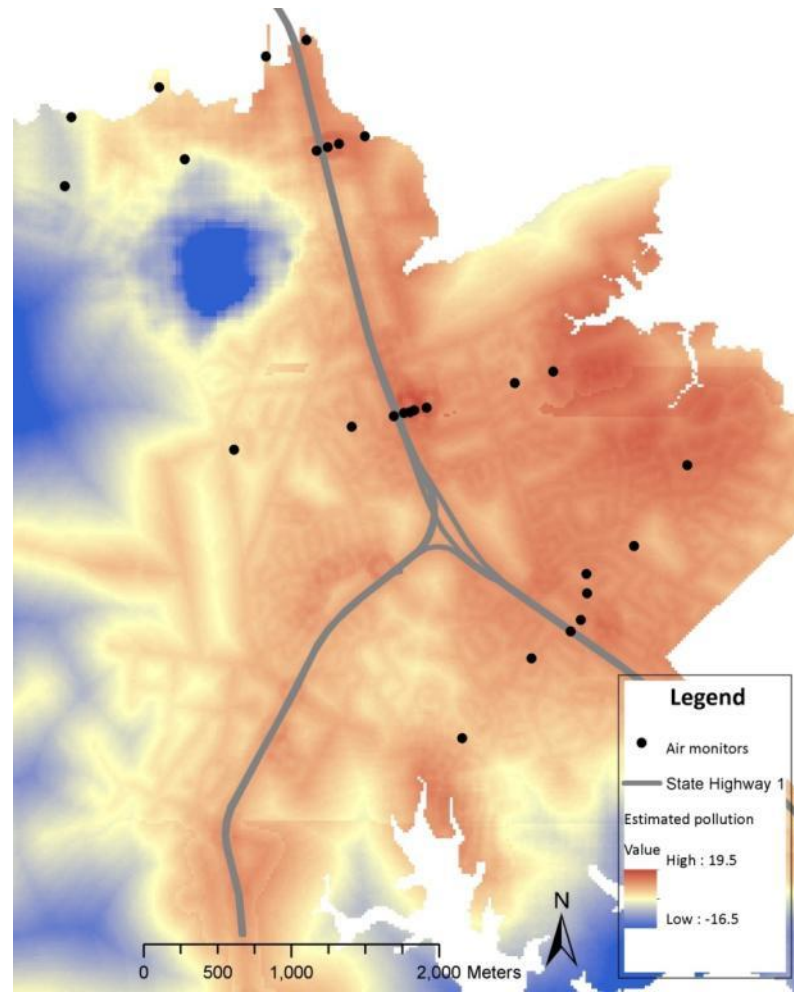
Christchurch, New Zealand

Exposure Modelling

- Health promoting exposures
- Health affecting exposures
- Two stages
 - Geographic (and temporal) variations in character of the environment
 - Population mobility

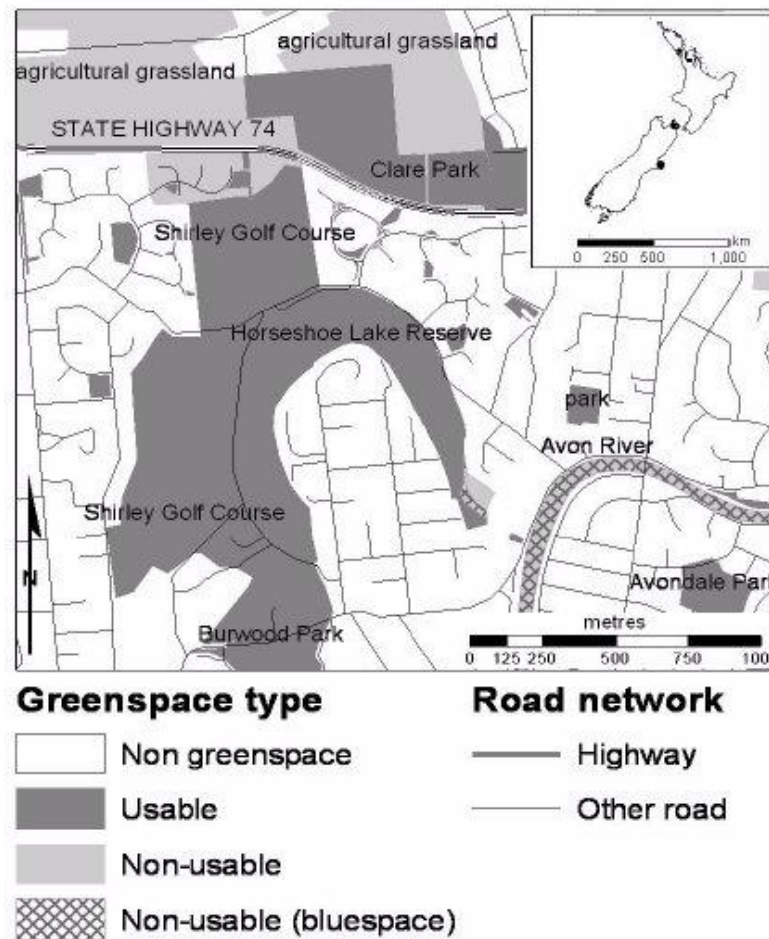
Examples

1. Air quality – Land Use Regression (LUR)



Examples

2. Green space – proximity and proportion



Examples

3. Alcohol outlets – Distance

Table 2: Incidence rate ratios (95% confidence intervals) for serious violent offences predicted from quartiles of distance to closest alcohol outlets by type/category for baseline and full models after adjustment for confounders.					
Any licence		On licence		Off licence	
Distance to closest outlet quartile	Baseline		Baseline		Baseline
Closest (<0.9 km)	2.4 (1.81-3.16)	(< 1.2 km)	2.0 (1.50-2.67)	(<1.1 km)	2.4 (1.78-3.14)
Closer (0.9-1.6 km)	1.2 (0.92-1.60)	(1.2-2.1 km)	1.3 (1.01-1.76)	(1.1-1.9 km)	1.3 (1.00-1.75)
Further (>1.6-4.5 km)	1.2 (0.93-1.63)	(> 2.1-5.6 km)	1.1 (0.83-1.48)	(>1.9-4.8 km)	1.3 (0.97-1.70)
Furthest (>4.5 km)	1.0	(> 5.6 km)	1.0	(>4.8 km)	1.0
	Full model ¹		Full model ¹		Full model ¹
Closest (<0.9 km)	1.5 (1.10-2.03)	(< 1.2 km)	1.6 (1.16-2.08)	(<1.1 km)	1.4 (1.05-1.93)
Closer (0.9-1.6 km)	1.3 (0.98-1.65)	(1.2-2.1 km)	1.2 (0.96-1.60)	(1.1-1.9 km)	1.3 (1.00-1.65)
Further (>1.6-4.5 km)	1.3 (1.01-1.63)	(> 2.1-5.6 km)	1.2 (0.96-1.55)	(>1.9-4.8 km)	1.4 (1.08-1.73)
Furthest (>4.5 km)	1.0	(> 5.6 km)	1.0	(>4.8 km)	1.0
On and off licence categories					
On licence	Baseline	Full model ¹	Off licence	Baseline	Full model ¹
Hotel/tav/club			Hotel/tav/club		
Closest (<1.4 km)	2.2 (1.65-2.91)	1.4 (1.05-1.82)	(<1.7 km)	2.1 (1.57-2.78)	1.3 (0.99-1.66)
Closer (1.4-2.7 km)	1.3 (0.96-1.67)	1.2 (0.91-1.51)	(1.7-3.1 km)	1.2 (0.89-1.55)	1.0 (0.78-1.28)
Further (>2.7-6.2 km)	1.2 (0.88-1.56)	1.2 (0.95-1.53)	(>3.1-6.3 km)	1.0 (0.77-1.36)	1.0 (0.80-1.28)
Furthest (>6.2 km)	1.0	1.0	(>6.3 km)	1.0	1.0
Restaurants			Bottle stores		
Closest (<1.6 km)	2.0 (1.49-2.63)	1.5 (1.15-2.07)	(<1.4 km)	1.8 (1.39-2.43)	1.6 (1.21-2.07)
Closer (1.6-3.4 km)	1.2 (0.88-1.54)	1.1 (0.86-1.44)	(1.4-3.3 km)	1.0 (0.77-1.33)	1.3 (1.00-1.59)
Further (>3.4-9.9 km)	1.1 (0.85-1.50)	1.2 (0.93-1.33)	(> 3.3-9.2 km)	0.9 (0.65-1.14)	1.2 (0.95-1.54)
Furthest (>9.9 km)	1.0	1.0	(> 9.2 km)	1.0	1.0
Supermarket grocery store					
		Closest	(<1.4 km)	2.5 (1.86-3.25)	1.3 (1.00-1.77)
		Closer	(1.4-3.2 km)	1.3 (0.99-1.73)	1.2 (0.94-1.54)
		Further	(>3.2-8.4 km)	1.2 (0.91-1.57)	1.1 (0.86-1.39)
		Furthest	(>8.4 km)	1.0	1.0

Examples

- 4. Obesogenic environments
- 5. Cycle infrastructure
- 6. Public transport
- 7. Earthquake impact